Determining Perimeter

Reporting Category Measurement
Topic Measuring distance to determine perimeter

Materials

- Foam core or other thick material
- Scissors
- String
- Inch-centimeter rulers

Vocabulary

distance, perimeter, inch, centimeter, ruler, measure, estimate, polygon

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Before undertaking this activity, cut out various polygons from foam core or other fairly thick material. Size the polygons so that their perimeters are slightly less than 12 inches.

1. Demonstrate measuring the distance around a polygon by wrapping a piece of string around a polygon cut from foam core or other fairly thick material. Once the length of string needed to go around the polygon has been determined, model measuring that length in order to determine the polygon's perimeter.
2. Distribute a polygon cutout to each student, and ask students to estimate the lengths of string in inches and in centimeters that will be needed to go around their polygons. Have students record their estimates.
3. Distribute rulers and pieces of string approximately 12 inches long, and have each student wrap the string around his/her polygon to get the exact length needed to go all the way around. Then, have each student use a ruler to measure the exact length of string in inches and centimeters and record his/her measurements with the correct unit of measure. Emphasize that these lengths are the perimeter of the polygon.

Assessment

- **Questions**
  - What are the benefits to using string to measure the distance around a polygon?
  - How could you complete the same activity using only a ruler?
- **Journal/Writing Prompts**
  - Identify some examples of shapes found in everyday life for which you might want/need to measure their perimeters. Explain why knowing how to do this is important.

    - Identify a profession in which workers must know how to determine the perimeter of a shape accurately. Discuss why it is important for the workers to determine perimeter accurately and some of the consequences that would happen if they could not do this.
- **Other**
    - Have students draw their own polygons and exchange them with classmates to estimate and measure their perimeters.
    - Have students estimate and measure the perimeters of some shapes found in the classroom and around the school.

Extensions and Connections (for all students)

- Display two or three large United States maps of different scales. Group students into small groups of three or four, and assign each group a state. (Note: The more regularly shaped states will work best.) Have each group use string to measure the perimeter of the assigned state on each map. Then, have students in each group compare their various perimeter measurements of the same state, discussing why they are so different. Use their findings to lead into a class discussion of map scale—how it plays a vital role in map design and why it is important to pay close attention to the scale of a map.

Strategies for Differentiation

- Provide students with cloth measuring tapes to use for wrapping instead of string.
- Provide students with string cut to the exact length of the perimeter of each polygon.
- Provide students with a variety of rulers to use.